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Risk, Denial and Narrative Form in Climate Change Fiction: Barbara Kingsolver's *Flight Behaviour* and Ilija Trojanow's *Melting Ice*

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Changing attitudes: how can cultural risk theory help meet the challenge of climate change?

As the scientific evidence has accumulated over the last few decades, the likely impact of anthropogenic global warming has been shown to be widespread and potentially catastrophic in the longer term: water shortages and the spread of diseases will lead to decreased agricultural productivity, while the rise in sea level, increased seasonal flooding, and extreme weather events will wreak havoc on coastal conurbations.¹ The projected increase in global average temperature by the end of the century, unless far-reaching measures are adopted to limit carbon emissions, lies between 2 and 6 degrees centigrade,² and the internationally recognised goal of climate policy of keeping the temperature rise to a maximum of 2 degrees could already be exceeded in just a few decades. Radical change is called for if famine, mass migration and armed conflict over resources are to be avoided in the current century.³ Yet, even in countries where there is high public support for the environmental movement and widespread awareness and belief in the risk of climate change, everyday life goes on almost as if it does not exist, few people spend much time thinking about it, and as yet little social action is being taken.

There are some obvious reasons for the discrepancy between the perception of the risk from global warming among experts and the general public. The factors involved in the phenomenon are complex and the scenarios for the future fraught with uncertainty: for some time after scientists first expressed concern over anthropogenic climate change in the 1950s, individual researchers such as Stephen Schneider proposed that human impact would lead to cooling rather than warming. (This theory has since been discredited.) In Northern Europe there is also ironically the danger of an abrupt drop in temperature resulting from interruption of the Gulf

¹ See "IPPC, 2007: Summary for Policymakers."

² See "IPCC, 2007: Synthesis Report."

³ See for instance Harald Welzer, *Klimakriege*, or Rahmstorf and Schellnhuber's more optimistic introduction to climate change in the 'C.H. Beck Wissen' series, *Der Klimawandel*.

Stream, which currently maintains a mild winter climate. Above all, climate change is singularly intangible and abstract in nature. Public concern tends to be driven by unusually hot summers, mild winters, early springs, drought, and extreme weather occurrences such as hurricanes. These cannot individually be directly attributed to global warming. And while a rise of half a degree centigrade in the global average temperature over a decade may be hugely significant, it is not detectable by the individual. It is difficult to either grasp the current impact or imagine the future consequences of something whose manifestations in our daily life are sporadic and which principally affects others in far-away countries.

For these and other reasons, people in industrialised countries are reluctant to accept the necessity for rapid transition from the fossil energy-based economy to post-fossil sustainability, and to embrace the changes in lifestyle which mitigating global warming demands. In consequence, the traditional information deficit model of science communication, which relies on simply conveying factual information to change people's awareness and behaviour, is not working. This paper examines how public perception of the risks from climate change is represented in two recent novels, Barbara Kingsolver's *Flight Behaviour* (2012) and Ilija Trojanow's *EisTau* (Melting Ice, 2011). My argument that climate change fiction deserves serious attention is based on the premise that the mechanisms through which risk is perceived must be examined as well as the bare facts of risk, and that strategies must be developed for engaging with these mechanisms. Climate change is a 'superwicked' problem,⁴ and in-depth understanding of how dangers from it are perceived by the public and why is a precondition for the communicative and psychological work to promote a more appropriate response which must accompany the pursuit of technical solutions.

The study of risk perception mechanisms necessitates multi-disciplinary work in cultural risk theory, including, as something of a late-comer, literary studies. Ursula Heise has provided a helpful summary of the development of risk theory in her study *Sense of Place and Sense of Planet*.⁵ Research into how environmental risks are perceived started in the late 1960s, and developed in the disciplines of cognitive

⁴ The term 'superwicked' denotes highly complex problems for which there is an urgent need for extensive change, but no clear solution. See Levin et al., "Playing it Forward."

⁵ See Chapter 4, "Narrative in the World Risk Society," especially pp. 124-136, "Theories of Risk Perception: Science, Culture, Narrative." I am also indebted to Chapter 6, "The Things We Fear", of Mike Hulme's book, *Why We Disagree About Climate Change*.

psychology, sociology, and anthropology. Since the 1990s, researchers in political science and economics have also been increasingly concerned with environmental risk perception. Understanding of risk was revolutionised by the cultural risk theory first formulated by the anthropologist Mary Douglas and the sociologist Aaron Wildavsky in 1982, in their study *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Prior to this, research focused on differences between expert and lay perceptions: objective, statistical considerations were seen to shape the former, while the latter were curiously indifferent to them. Until the early 1980s, it was assumed that lay risk perception was the product of a combination of the characteristics of the risks themselves and individuals' cognitive behaviour, with the latter needing to be explained and ultimately corrected.

Noting that in a given community only some risks are selected for conscious awareness and given social and cultural significance, Douglas and Wildavsky drew attention to the 'cultural' factors involved in risk assessment. Worldview, collective thought patterns, and values were, they argued, as important as models of individual cognition for the construction, perception and ranking of risks. Research on the cultural dimension of risk has focused mainly on the role played by broad social, cultural and political attitudes in shaping risk perception.⁶ It is now widely accepted that risk perception includes affective, social and cultural factors as well as cognitive ones. The predominantly realist assumptions of the 1970s have been replaced by increasingly nuanced analyses of the social and cultural frameworks that shape non-expert risk assessments.

Social and cultural factors would appear to play a particularly important role in cases of environmental risk, whose assessment relies on dimensions which are hard to quantify, such as uncertain consequences, long-term futures, and the intrinsic value of nature. Drawing on research by the anthropologist Michael Thompson, Mike Hulme has shown how cultural risk theory can be mapped onto different ways of regarding nature (for instance as benign, ephemeral, perverse/ tolerant, and capricious),⁷ and he has further explored the emotional and cultural factors involved

⁶ Hulme reviews research suggesting that individuals, social groups and entire societies can be placed in the framework of a fourfold classification of "fatalists", "hierarchists", "individualists," and "egalitarians," depending on whether they are group-oriented or individual-oriented, and the extent to which they believe rules are needed to control behaviour.

⁷ Hulme, *Why We Disagree*, pp. 186-90.

in the perception of climate risks.⁸ Hulme discusses at some length the ability of narratives, metaphors and symbols to amplify (or attenuate) the perception of climate risks and their manageability, citing the coupling of climate change with the language of global terrorism after 09/11, the introduction of the idea of ‘tipping points’ (which shifted public perception of the crisis from the prospect of slow incremental change to large, rapid dislocation of the climate system), and links with cultural pessimism as examples of the cultural (re-)construction of risk perception.

In the following, I am concerned with the implications of cultural risk theory for the study of literature and the part it plays in public debate and cultural change.

Flight Behaviour and *EisTau* provide a basis for examination of key genres, narratives and images which contemporary authors are retrieving from literary tradition and adapting to their representations of the risk involved in global warming.⁹ Both Kingsolver and Trojanow have made clear in interviews their intention to alert the public to the risks posed by climate change through their writing.¹⁰ By personalising the experience of global warming and dramatising its consequences, they seek to bring it alive and help readers imagine the future. My discussion is focused on two questions: first, the question of the extent to which these climate novels represent the public response to climate change in terms which bear out the conception of denial as an active process. Sociologist Kari Norgaard has recently developed this conception which involves the use of cultural tools in order to manage emotions. Secondly, I discuss how Kingsolver and Trojanow draw on the historical archive of genres, narratives and images in order to challenge and destabilise hegemonic systems of perception, attention and morality. I show how Norgaard’s distinction between outright denial of climate change and more qualified denial of its risk implications is reflected in the two novels, and suggest that literary analysis of texts such as these can yield insights which complement sociological and psychological studies of denial. Finally, I argue that telling and listening to, writing and reading such stories about environmental risks and our attitudes towards them

⁸ Hulme presents for instance the findings of an empirical study by the psychologist Tony Leiserowitz which demonstrated that environmental risk perception in the United States is greatly influenced by emotional and affective factors on the one hand, and by underlying values and worldviews on the other.

⁹ Page references to the two novels are given in brackets in the running text, with the respective initials FG and MI. *EisTau* has yet to appear in English: the translations are my own.

¹⁰ See Bryan Walsh, “Barbara Kingsolver on *Flight Behaviour*,” and Stefan Gmünder, “Ilija Trojanow: Vor der Katastrophe.”

can facilitate a change of attitudes and action, both by contributing to the public's critical awareness of arguments about environmental risks, and by creating a sense of the feasibility of change and the need for it through the power of literary imagination.

Climate denial 1: how do sociological and psychological studies of denial explain the public failure to respond to climate change?

Kari Norgaard's study of public attitudes towards climate change in Norway and the United States, *Living in Denial: Climate Change, Emotions, and Everyday Life* (2011), throws new light on the ways in which social and cultural factors affect the perception of environmental risk by combining ethnographic fieldwork and interviews with media analysis. Her main focus of interest is the disjuncture between the collectively constructed sense of normal everyday life and the troubling knowledge of climate change and our contribution to it. She describes a mental landscape wherein the possibility of climate change is both deeply disturbing and almost completely submerged, simultaneously unimaginable and common knowledge (p. xix).

Norgaard starts by distinguishing between three different forms of denial of environmental risk: literal denial of the existence of climate change (climate skepticism), interpretive denial (framing the change in such a way as to make it positive), and implicatory denial (denial of its political, social and moral implications). Denial is a product of at least four different factors: it is a matter of the political and economic circumstances, a consequence of the work of lobby groups and the media, a product of social norms and a matter of individual psychology. Norgaard does not regard the media or political party interests as principally responsible for climate apathy in the US. Nor does she hold, contrary to the view of many contemporaries, that the underlying cause is today's pervasive individualism, selfishness and greed, or an irreversible process of moral degeneration. Rather, she argues that we block the topic from our minds in order to avoid feelings of fear, guilt and helplessness. Climate denial is a form of evasion, through frequently unconscious organisation of information about global warming in such a way that it remains outside the sphere of everyday reality.

The information we receive from climate scientists challenges the basics of contemporary social organisation. Climate change is therefore a daunting and depressing subject. It engenders fear of the severity of consequences and their implications for our future life, guilt over our own actions and failure to take action, and feelings of helplessness and inefficacy. These threaten individuals' sense of how the world is and the meaning of life, and their faith in progress. They also undermine conceptions of individual and national identity. We block information in order to maintain coherent meaning systems, desirable emotional states, and a sense of our ability to control our lives. Norgaard examines denial as a socially organised process by which individuals collectively distance themselves from information, through adherence to social norms and use of a repertoire of means provided by their culture. On the one hand this cultural dimension of climate perception and denial consists of norms of attention, perspective, emotion and conversation. On the other it involves the use of received worldviews and their articulation in symbols, stories and rituals.¹¹

In everyday life, Norgaard observed cultural scripts which supported individual acts of turning away from climate change. She identified three common displacement strategies, by means of which problems such as climate change are screened out, so as to avoid being overwhelmed by guilt and despair: (1) changing the topic to something less difficult and troubling, (2) focusing on an aspect about which action can be taken, and (3) treating the subject with humour, in a way which releases the pressure associated with the uncomfortable emotions raised by taboo topics. At the same time, she found that the media tended to write of climate change in subtly reassuring ways, e.g. presenting untoward events as unique, stressing things were going fine, smoothing over troublesome questions, and appealing to people's sense of their own toughness. Attention was often directed to local happenings and the past – making it difficult for readers to think in terms of the scales of time and space needed to conceptualise climate change.

Of particular relevance for the student of literature is the concept of the 'cultural toolkit,' which Norgaard borrows from the sociologist Ann Swidler. Swidler suggests that culture influences action less (as originally assumed in cultural risk theory) by providing the values towards which action is oriented than by placing a

¹¹ See Norgaard, Chapter 4, "The Cultural Toolkit, Part One: Cultural Norms of Attention, Emotion, and Conversation," and Chapter 5, "The Cultural Toolkit, Part Two: Telling Stories of Mythic Nations."

repertoire or toolkit of “chunks of culture” (stories, rituals, symbols and worldviews) at people’s disposal for solving problems. Publicly available meanings facilitate certain patterns of action, while discouraging others. Denial is thus carried out through a cultural stock of strategies and social narratives, with the aim of achieving ‘thought prevention,’ ‘perspectival selectivity,’ and ‘selective interpretation’ (*Living in Denial*, p. 94).

For Norgaard, ignoring climate change is an active process, in which understanding of the science and care about the consequences are muted, in order to protect individual identity and sense of self-efficacy, and to maintain culturally produced conceptions of reality. She observed how selective attention to issues and perspectival selection were achieved in Norway by focusing on the past and the local (norms of time and space), through codes of desirable behaviour such as toughness (norms of emotion) and through permissible patterns of social interaction (restricting the conversational spaces in which concern over climate change could be freely expressed). Discourses of self-understanding as a nation also played a role. In the USA, Norgaard highlights the respective implications of the traditions of individualism (which has the effect of disempowering people in the face of climate change by undermining their confidence in the efficacy of collective action and the ability of the political system to deliver a solution), anti-intellectualism (making it difficult to engage with science), and exceptionalism (implying Americans are allowed to be different because they spread democracy).

Climate denial 2: how can ecocritics enhance this understanding of denial by showing how debates on climate change are framed by conventions of narrative, form and image?

The importance which an environmental sociologist such as Norgaard attaches to cultural traditions, constructions of identity, and the symbols, stories and rituals through which they are conveyed, as factors shaping the perception of risk from climate change, supports the claim of literary, art and film critics to have a special contribution to make to risk theory. It is important, however, to distinguish between broad sociological definitions of culture as “the publicly available symbolic forms through which people experience and express meaning,” and “symbolic vehicles of

meaning, including beliefs, ritual practices, art forms, and ceremonies, as well as informal cultural practices such as language, gossip, stories, and rituals of daily life,”¹² and the much narrower understanding of the term in cultural studies (literature, film, art, music, fashion, popular culture). Swidler and Norgaard do not distinguish between the meanings and beliefs in a culture and the cultural products encoding them: Swidler writes of the toolkit as consisting of “symbols, stories, rituals, and worldviews” (p. 273), and elsewhere of the “tacit culture” of “habits, skills, and styles” (273, 281). Norgaard includes in her cultural toolkit “features of everyday life from emotion norms to cultural narratives” (p. 215). I am here concerned with the narrower question of the role of genres, narrative patterns and metaphors in articulating the conceptions of nature, self and environmental risk which underlie texts.¹³ Perceptions of global warming and other risks are shaped by and filtered through narrative templates, and visual images can come to function as shorthand for particular dangers and crises. Modes of writing utilising particular rhetorical tropes and genres are among the most important means of “organising information about risks into intelligible and meaningful stories” (*Sense of Place*, p. 138).

Apocalypse, or the perception of an inexorable worsening of the situation until a climax of destruction is reached, which may facilitate a fresh start for survivors, has been one of the most influential modes of risk communication in the environmental movement. An equally influential mode of writing is the pastoral, today normally found in the form of elegiac lament over the loss of a world in which harmonious relations with nature supposedly once prevailed in holistic, small-scale communities. Important genre models in accounts of risk are the detective story (which evaluates clues and eyewitness accounts, discovers and exposes the criminal), the *Bildungsroman* (in which the protagonist comes to recognise the dangers from environmental change), tragedy (which depicts fateful events which individuals are only partly in control of), and epic (in which the planetary implications of risks are experienced). As Heise has commented, understanding how these rhetorical and genre traditions filter and shape information about risk so as to postulate certain causal consequences, make some scenarios plausible and others less so, make some appear more threatening than others, and outline likely future courses of events, is an aspect of risk theory to which ecocritics have a significant contribution

¹² Swidler, “Culture in Action,” p. 273.

¹³ See the section “Risk and Narrative” in Heise’s *Sense of Place and Sense of Planet*, pp. 136–43.

to make (*Sense of Place*, p. 139). Alongside this 'pathological' practice of discourse analysis, examination of the potential of tropes and genres, narrative structures and metaphors to enrich and enhance arguments may throw light on the mobilising potential of literary texts as resources which can be drawn on in addressing climate apathy.

Genres and narratives as framing templates in Flight Behaviour and Melting Ice

Flight Behaviour combines elements of different narrative genres (narrative of conversion, *Bildungsroman*) and modes of writing (sublime, apocalypse, pastoral). The book opens with what appears at first sight to be a religious experience. Dellarobia Turnbow, the central figure, is a farmer's wife in the southern Appalachians. A bright and attractive 28-year-old with a gentle, passive and unambitious husband, she is trapped in claustrophobic rural poverty and the drudgery of life as a mother of two small children. Breaking out in desperation from her unfulfilling everyday existence, she is on her way to an illicit assignation with a young telegraph engineer in a hunting hut on the mountainside above the farm. The would-be adulterer is stopped in her tracks by the sight of a forested valley seemingly alight with a cold orange flame. Dellarobia's experience is described in terms bordering on the miraculous:

The forest blazed with its own internal flame. "Jesus," she said, not calling for help, she and Jesus weren't that close, but putting her voice in the world because nothing else present made sense. The sun slipped out by another degree, passing its warmth across the land, and the mountain seemed to explode with light. Brightness of a new intensity moved up the valley in a rippling wave, like the disturbed surface of a lake. Every bough glowed with an orange blaze. (*FB* 14)

Though not a religious person, Dellarobia decides that the strange explosion of light must be some sort of warning, like the burning bush in which the Lord confronted Moses: "Unearthly beauty had appeared to her, a vision of glory to stop her in the road. [...] It had to mean something." (*FB* 15-16) It jolts her out of the rut of frustration

and escapist fantasies, at the very moment when she was about to jeopardise her future, and that of her family, since nothing remains secret for long in small-town Tennessee. Her impulse to commit an act of blind self-destruction is transformed into determination to live differently. “I was going to run out on our marriage in a stupid way”, she later confesses to her husband. “It was like I had to come back and do the right thing.” (*FB* 384) “Flung from complacency as if from a car crash” (*FB* 23), Dellarobia descends the mountain, imbued with a new self-confidence, and impatient with the pettiness of everyday affairs like Moses after receiving the Ten Commandments.

Doubt is, however, simultaneously cast on the implication of divine intervention present in the biblical echoes of the description of Dellarobia’s encounter with the “fierce and wondrous”, seemingly burning forest (*FB* 16). Its mysteriousness is largely due to her vanity: wishing to make a good impression on the lover she is rendezvousing with, she has left her glasses behind and cannot see properly. We soon learn that the “lake of fire” (*FB* 16) consists of millions of bright orange Monarch butterflies, and that their arrival is a consequence of global warming. Everyone in *Flight Behaviour*, from religious fundamentalists to environmentalists and the ratings-conscious media, frames the phenomenon to suit their own interests. A local newspaper (which presents Dellarobia as “Our Lady of the Butterflies”, *FB* 77), her husband Cub, and, after some hesitation, also her mother-in-law interpret her ‘vision’ as a sign of divine grace, and Dellarobia is initially tempted to believe it herself. However, the arrival of the entomologist Ovid Byron and a team of researchers soon acquaints her with the sober scientific facts. Changes on the Mexican mountainsides where they normally overwinter, drought affecting the plants they eat, an increase in pesticide spraying because global warming has brought in new mosquitos, changes in weather patterns, the northward spread of fire ants, and higher infection rates from parasites which limit their flying ability are climate-related factors responsible for disrupting the butterflies’ normal migration pattern. Here in the Appalachian mountains they are faced with extinction, for, exposed to sub-zero temperatures, they will be lucky to survive the winter. Dellarobia learns that their presence is a symptom of damage to the earth’s fragile ecosystems, and to understand it as part of a broader picture of change including “weird weather” (*FB* 84, 260), and “unrelenting” rain (*FB* 49), which is resulting in trees being uprooted, rising groundwater, floods and landslides. Byron explains:

“We are seeing a bizarre alteration of a previously stable pattern [...]. A continental ecosystem breaking down. Most likely, this is due to climate change. Really I can tell you I’m sure of that. Climate change has disrupted this system. For the scientific record, we want to get to the bottom of that as best we can, before events of this winter destroy a beautiful species and the chain of evidence we might use for tracking its demise. It’s not a happy scenario.” (*FB* 228f.)

Byron is driven by grief over the prospect of the extinction of the species, and by frustration and anger at the lack of public concern over climate change. “It will only take a few degrees of change, global average, to knock our kind out of the running,” he notes grimly (*FB* 279), but: “Humans are in love with the idea of our persisting” (*FB* 282). However, in Dellarobia’s world of “little hopes” and thankfulness when short-term targets are reached, there is no room for Byron’s bouts of pessimism (*FB* 283). Our attention is directed towards Dellarobia’s perception of environmental risk, and towards the blend of cognitive knowledge, ethical commitment to future generations, and faith in the ability of people to change things which she comes to acquire.

Flight Behaviour ends with a dramatic sweeping away of the Turnbows’ house by floods, whose advent has been hinted at throughout the novel. However, as the story unfolds, it turns out to owe less to the cultural conventions of the sublime, the apocalyptic, or even the pastoral (which is evoked in passing in passages marking respect for Dellarobia’s mother-in-law Hester’s knowledge of local plants and the needs and behaviour of the animals on the farm), than to the *Bildungsroman*, or narrative of an individual’s awakening to environmental risk and simultaneous realisation of their potential as an active member of society.¹⁴ Dellarobia undergoes an inner journey from ignorance and absence of concern to scientific understanding of the processes and possible risks from anthropogenic climate change. This combines with an urge to change her life which is triggered, as noted above, by the

¹⁴ Whereas the traditional *Bildungsroman* is a story of the formation and education of a young person, focusing on their psychological and moral growth from youth to adulthood, and their integration into society, the characteristic narrative structure of the ‘Green *Bildungsroman*’ has been identified by Bill Niven as an *unravelling* of the fabric of this integration into the established social and moral order, and the protagonist’s reorientation towards an ecological set of values. See Niven, “The Green *Bildungsroman*.”

butterflies. She eventually leaves her husband to start a new, independent life. At the uplifting end of the book, Dellarobia tells her son that they will move out and share an apartment with her friend Dovey. The children will have to learn to accept their parents' separation, and money will be tight, but she has the prospect of a job, thanks to Byron, which will enable her to pay her way through college. Ecological enlightenment is thus mapped onto female emancipation.

Melting Ice also combines elements of different narrative conventions. In terms of genre, it is structured as a diary: the greater part of the text consists of entries in the diary of Zeno Hintermeier, a former glaciologist who is now working as an academic tour guide on a cruise ship in the Antarctic. Zeno switches to and fro in a stream of consciousness between his account of events on the cruise, passages of travel writing, and autobiographical reflections. The principal mode of writing of Trojanow's novel is, however, to use Heise's term, the "disrupted pastoral" (*Sense of Place* 139). Lyrical passages celebrating the beauty of the Antarctic alternate with others lamenting its pollution and desecration by human exploitation and the impact of global warming (*MI* 10, 64-5). The predominant tone is one of elegy over the passing of the Earth's last pure and pristine wilderness, a place of silence where nature is present in all its fullness (*MI* 77-8), and creation is visible in unaccustomed clarity (*MI* 81).

As in *Flight Behaviour*, parts of the novel are written in the comic mode. These alleviate the intensity of the pathos and afford relief from the book's gloomy message of man's incompatibility with nature. However, here it is the (male) scientist rather than a (female) member of the general public who is the centre of attention. Zeno's world has fallen apart after a glacier in the Alps whose shrinking he has been studying for decades finally breaks up and melts. Approaching retirement and recovering from illness, he has resigned from his chair at the University of Munich, and taken on a job which reconciles him at least temporarily with the loss of his beloved glacier. But Zeno becomes increasingly embittered in the face of the public's indifference to environmental damage in general and climate change in particular. His diary includes caustic remarks on the consumer society (*MI* 69-73), greed (*MI* 79), and the instrumental use of natural resources (*MI* 83), and records a growing tendency to predictions of the demise of humanity. He fantasises about natural disasters, recalling seeing traces of the great earthquake of 1755 on a trip to Lisbon

(*MI* 121-3), and the thrill he felt watching on television as a mountain village was swept away by an avalanche (*MI* 118).

At the end of *Melting Ice*, Zeno hijacks the cruise ship which he is working on, and steams off into the southern Atlantic, leaving the passengers and crew stranded. He lets himself overboard to drown in the icy waters. However, his desperate gesture of protest goes unheeded: the passengers are saved in time by other ships in the vicinity, and reports of the event in the news are drowned out by media babble and advertising, giving us to understand that society maintains its current course unchanged. In contrast with Kingsolver's feelgood tale, this ending appears profoundly pessimistic. Unless, that is, the book is read as a critique of environmentalist apocalypticism. For Zeno would appear to be deliberately constructed as an ambivalent figure. On the one hand, comments such as that he is tired "of being a human being" (*MI* 154), that the only way to save the human race is to cast it down from its pedestal, and that he is comforted by the thought that one day the only trace of human life to remain will be their faeces (*MI* 167) indicate a degree of misanthropy. His suicide can also hardly be intended as a model for constructive action. On the other, he attracts our sympathy as a sensitive individual responding with integrity in a situation which we should probably all be experiencing as intolerable. His behaviour as a "crank with convictions" (*MI* 140) is endorsed inasmuch as it draws attention to the public's blindness to our impact on the planet, and appeals to readers' moral conscience. In a key passage, he speaks of being misanthropic in a positive sense, and insists that love of nature does not necessarily mean violence against humanity. It is rather absence of love of nature which leads to violence, including violence against our fellow men (*MI* 159). Refusing to go along with the shallow optimism of the day, Zeno seeks to open the eyes of the cruise passengers (and the public in general) to the risks from climate change. The fact that the only way of doing so which he can envisage involves committing suicide and putting the lives of others in danger must be understood as a challenge to Trojanow's readers to envisage an alternative.

"Queens of de-Nile": representations of climate denial and responses to it

Both authors then write out of a sense of frustration with the inadequacy of the public response to the risks of global warming, but *Flight Behaviour* presents a particularly detailed portrait of climate denial. Kingsolver pulls no punches in exposing the “blindness” of Appalachian farmers and small town communities in America’s Bible Belt to the dangers of anthropogenic global warming. She nevertheless depicts their mental world with sympathy and understanding. Political and commercial interests are present in the background, but rather than making the machinations of lobby groups responsible for environmental apathy, or even the media, she focuses on the everyday worries of people without higher education, bordering on poverty. This corresponds closely to the findings of sociological studies summarised by Kari Norgaard: disbelief in the existence of anthropogenic climate change certainly exists in the United States, where well-organised, corporate-funded campaigns under the George W. Bush administration have left a legacy challenging the legitimacy of science in the public sphere. But even in America climate skepticism would appear to be socially less significant than failure to integrate the general cognitive knowledge of climate change and acknowledgement of its seriousness into everyday life action, and to translate it into political action.

Trapped by poor harvests and the repayments on loans they took out before the recession hit, the people of Feathertown are “boxed in” (*FB* 208). The temptation to liquidate assets is great: logging appears to offer a solution (*FB* 174), and clearcutting is the preferred method, because it yields greater profits than selective felling. The danger of causing landslides from exposed mountain slopes is ignored. Behind the current recession-driven financial situation of Dellarobia’s family lies a long-term economic trend. Her father, a cabinetmaker, and her mother, a seamstress, both lost their jobs to cheap mass production and the import of foreign clothes and furniture (cf. *FB* 151, 157f.).

In a world over which they have little control, these people have delegated the responsibility for making decisions to media opinion formers: “Nobody truly decided for themselves. There was too much information. What they actually did was scope around, decide who was looking out for their clan, and sign on for the memos on a wide array of topics.” (*FB* 166) The men are typically overweight and lazy: Dellarobia muses that her husband’s first response to a crisis is to take a nap (*FB* 39). He spends his leisure time drinking beer and channel-surfing TV. Flicking from one channel to another, referred to scathingly by Dellarobia as “ADHD TV” (*FB* 112), is a

mark of the “persistent inattention” (*FB* 65) of people reluctant to be mentally challenged: “If people played their channels right, they could be spared from disagreement for the length of their natural lives. Finally she got it. The need for so many channels.” (*FB* 258) Living a life of constant distraction, without coherence or focus, they avoid confrontation with inconvenient truths.

The media are of course also not free of blame. Kingsolver acknowledges that they are responding to public demand, but castigates them for doing so without moral principles, inasmuch as they encourage sceptical rejection of scientifically established truth. Rather than collecting information, they seek to shore up the prevailing view of their audience and sponsors. “The official view of a major demographic,” as the postdoc Pete comments, “is that we aren’t sure about climate change. It’s too confusing. So every environmental impact story has to be made into something else. Sex it up if possible, that’s what your news people drove out here for. It’s what sells.” (*FB* 230) Johnny Midgeon, whose radio show is Cub’s prime source of information and opinion, makes fun of global warming whenever there is a spell of bad weather, with the line: “Al Gore can come toast his buns on this.” (*FB* 260) Dellarobia learns to recognise how the media “archly twisted comedy with news” (*FB* 187), deflecting attention from the seriousness of issues, and how they sensationalise, manipulate, simplify and invade individuals’ privacy in pursuit of stories with popular appeal.

Dellarobia’s own initial response to mention of global warming is one of extreme caution (“Climate change: she knew to be wary of that”, *FB* 147), exemplifying Norgaard’s category of interpretive denial in the face of climate risk. Wanting to save trees for trees’ sake (*FB* 44) or to protect species because they are “endangered” arouses suspicion in her community because it hinders farmers’ freedom of action (*FB* 53). Global warming and state programmes to preserve “the ecology” are issues “for them” (the affluent urban middle class) and not “for us”. The nation is divided: “The teams are picked, and then the beliefs get handed around,” Dellarobia comments (*FB* 321). Within the last fifteen years, in the US at least, “the environment got assigned to the other team. Worries like that are not for people like us.” (*FB* 322) Kingsolver shows how the self-image of a community used to hunting and logging and driving gas-guzzling 4x4s, and suspicious of interference in their lives by urban intellectuals and the state, militates against their acceptance of climate change: “If you’ve been called the bad girl all your life, you figure you’re

already paying the price, you should go on and use the tickets. If I'm the redneck in the pickup, let me just go burn up some gas." (*FB* 323) Echoing Kari Norgaard's findings on how facts and concerns which are not consonant with the identities and self-understandings of the local or national community are filtered from their consciousness, Byron's wife, the folklorist Juliet, comments: "Once you're talking identity, you can't just lecture that out of people. The condescension of outsiders won't diminish it." (*FB* 395) The crux of climate denial is addressed in a conversation between Dellarobia and Byron. When she says she just can't see the presence of the beautiful butterflies as "all that bad," he comments that refusing to look at the evidence is a popular form of behaviour. She retorts: "It's not that we're all just lazy-minded. [...] People can only see things they already recognise. [...] They'll see it if they know it." "How do they see the end of the world?," Byron asks. Her reply: "They know it's impossible" (*FB* 282-3) is a shocking recognition for him.

Kingsolver makes extensive use of analogy as a structuring device in the novel. Blindness to environmental change, referred to as "looking without seeing" (*FB* 52), is multiply paralleled by Dellarobia's suppression of her grief over the loss of her first pregnancy, her mother-in-law's life of quiet desperation and denial (which as we learn at the end of the book derives from having had to give her first, illegitimate child up for adoption in order to be accepted by her husband), and public refusal to face up to the consequences of smoking. "I think people are scared to face up to a bad outcome. That's just human. Like not going to the doctor when you've found a lump" (*FB* 231), Dellarobia comments at one point, remarking more drily at another that not picturing the crash landing in the cancer ward is a strategy which "works for some" (*FB* 196). False, ostrich-like optimism and avoidance of difficult topics in everyday life are depicted in ways which correspond closely to Norgaard's conception of individual and social mechanisms managing emotions, suppressing feelings of fear, guilt and powerlessness. As Dellarobia remarks: "The human person cannot face up to a bad outcome, that's just the deal. We're all Cleopatra, like that Pam Tillis song. Cruising down that river in Egypt. Queens of de-Nile" (*FB* 196).

That Dellarobia succeeds in giving up smoking is a sign of her managing to extricate herself from a life of denial on other levels, including not facing up to the fact that she cannot be happy in a marriage in which, starved of self-realisation and self-respect at the beck and call of her children and husband, she has fantasised about suicide (*FB* 41). She learns to accept change and to overcome her fear of

moving on (*FB* 394). That she develops awareness of the unsustainability of the American way of life and a wish to play a part in understanding climate change is thanks largely to her curiosity and her willingness to read and learn (*FB* 109). Byron and the other scientists who dedicate their lives to painstakingly building up knowledge of the processes of change are her role models. However, her wildness and defiance also play a role in the process, just as these qualities are shown to be an integral part of the environmental movement, through depiction of groups who arrive to protect the butterflies such as the Californian teenagers from (the real) 350.org and the British members of (the seemingly fictional) WOMYN, who are described as “knitting the earth together” (*FB* 339), and as “citizens of their own cheerful universe despite their full awareness of its unravelling” (*FB* 341).

Religion emerges as a form of denial. In an increasingly secular, materialist and individualistic society, the people of Feathertown, suspicious of outsiders and everything foreign (*FB* 96, 130, 140), cling to traditional values (e.g. the view that “a wife working outside the home is a reflection on the husband”, *FB* 216). Their most readily adopted explanation for climate change is a religious one: weather is “the Lord’s business” (*FB* 261). This response has positive potential if the demise of the Monarch butterfly is interpreted as the loss of a part of God’s creation. But it manifests itself more frequently as blind trust in providence, and a tendency to ignore the bad news that the butterflies’ presence is at best temporary, and will possibly lead to their extinction. The local people take it for granted that He has given them the butterflies, either as a reward for good deeds (intending them to derive financial profit from tourism, for instance by opening a theme park, *FB* 255), or as a token of redemption after they have sinned (*FB* 302). Dellarobia conforms to social expectation by going to the local church on Sunday, but maintains a rebellious stance of sceptical detachment. We are told that she views the church “as a complicated pyramid scheme of moral debt and credit resting ultimately on the shoulders of the Lord, but rife with middle managers” (*FB* 21). While acknowledging the emotional needs it fulfils, she recognises it as part of the problem of our blindness to climate change.

Climate denial is similarly a leitmotif in *Melting Ice*. Zeno describes his Bavarian neighbours as “defending their little idyll with every means of blindness” (*MI* 104). Sleepwalkers (*MI* 116), anaesthetised by an omnipresent backdrop of light music (*MI* 66), and drugged by consumption (*MI* 126), they fail to recognise the

environmental risk. Platitudes such as “don’t take it to heart”, “take a more relaxed view”, “turn a blind eye”, “it won’t turn out so bad”, and “things aren’t as bad as they seem” serve to placate guilty consciences and play down the seriousness of the situation (*MI* 83). Zeno castigates his contemporaries’ “expedient optimism” (*MI* 88), false innocence, and laziness. The thought of an empty wallet, he comments, is more disturbing than that of the extinction of the human race (*MI* 159). However, his angry outbursts disrupting the tacit agreement to act as if all were well contravene the social norms of attention, conversation and emotion. When he expounds his theory of “warmth-idiocy” (an inversion of the delusion experienced by sufferers from hypothermia, whereby the warmer the planet gets the more we want to heat it) to a sympathetic passenger, he only succeeds in filling her with consternation, since he has made it impossible for her to avoid feelings of guilt and helplessness (*MI* 102).

The position of religious feeling in the mental economy of our relationship with nature also differs from that in *Flight Behaviour*. Here the environmental activist is motivated by religious as well as ethical and aesthetic factors. The glacier in the Alps which Zeno’s father first brought him to see as a child fascinated him with its chapel-like caverns and ice formations resembling sculptures (*MI* 36). One day when visiting it as a student, we learn, Zeno was overcome by an urge to pray – to the Gaian earth spirit of diversity and fullness (*MI* 90). The glacier and, later, Antarctic icebergs are anthropomorphised, or more precisely, theriomorphised: Zeno describes them as vast female animals (*MI* 51, 65, 87) which possess an erotic attraction for him. That Trojanow as author appears to share his protagonist’s relationship with nature rather than hinting at its problematic potential might be seen as a weakness of the book. Awareness of the risk from climate change is in any case driven by emotions and a sense of moral justice rather than by the scientific rationalism which Kingsolver ultimately champions. If scientists are engaged in a battle against climate denial in *Flight Behaviour*, in *Melting Ice* they have become “brokers of destruction” (*MI* 116). Prophecy is therefore called for, not scientific projections (*MI* 127). It is a conversation with a Polish scientist reminding Zeno that his calls to fellow scientists at conferences in the past went unheeded which leads him to change his strategy, and seek to shake the public out of their sleep with his suicidal stunt.

Images and metaphors

The difference between the focus and writing strategies in the two novels is reflected in their titles. Kingsolver's book is concerned with the changed flight behaviour of butterflies as a disturbing symptom of global warming, but at the same time it is a study of human 'flight behaviour,' alluding to the public's flight before reality, in denying the necessity to change patterns of production and consumption in response to climate change-related environmental risks and hazards: "If fight or flight is the choice, it's way easier to fly" (*FB* 231). Trojanow uses perhaps the most familiar visible consequence of a rise in temperature, the transition from solid ice to liquid water, as a symbol of global warming. Our nightmares, Zeno muses, are possibly the most revealing features of the age we live in: whereas his father used to dream of freezing to death, his own nightmares are of ice melting in his hands and water running down his legs (*MI* 43). Glaciers, which used to be markers of the eternal and the sublime, have become signs of our gross negligence (*MI* 98). Ice and snow, traditionally associated with the majestic otherness of Alpine peaks, purity, courage, simple living, and nobleness of spirit,¹⁵ are dissolving into shapeless, soiled, vulgar banality. The title, *Melting Ice*, like the book as a whole, thus enlists readers' aesthetic and moral preferences in support of opposition to climate change, suggesting that with the melting of polar ice and glaciers a process of physical and moral degeneration has begun.

In both books, however, these are only the most prominent among a host of other structural metaphors and images, many of them rich in associations from cultural tradition, through which climate change is brought closer to the reader. Some of those in *Flight Behaviour*, such as logging and smoking, have already been touched on. Among the others, blindness/ seeing and the butterfly play a particularly prominent role. Blindness giving way to seeing is a recurring motif. Asked by her husband what she does working for Byron, Dellarobia says: "I see new things." (*FB* 258) She realises with a start that the old-fashioned receiver shape of her little girl's toy telephone reflects a tendency to see the world as it used to be rather than as it is, since everyone now uses cell phones (*FB* 134). Looking down from the fields above her home in winter, Dellarobia notes that in summer, the leaves obscure the topography of the farm, and the narrow drainage towards their house which is later

¹⁵ See for instance Eric Rentschler, "Mountains and Modernity: Relocating the Bergfilm."

responsible for disaster: “With all those reassuring walls of green, a person could not see to the end of anything. Summer was the season of denial.” (FB 257) Sitting in the car in a parking lot in the pouring rain, she reflects that the blurred outline of things through the windscreen must be like her father’s diminished vision when he had cataracts, brought on by some trauma she had never understood: this “seeing without seeing” is associated with her husband Cub’s refusal to talk about the past, to acknowledge the mistakes they made and to consider the alternatives to their present lives (FB 381-2).

Butterflies are of course the central symbol in the novel. *Flight Behaviour* celebrates the beauty of the Monarch species (*Danaus plexippus*) and expresses admiration for the extraordinary intricacy and sophistication of the instincts which enable it to migrate annually over thousands of miles between Mexico and Canada. The individual butterflies die on average after 6 weeks, but they pass on their genes to descendants, who complete the journey northwards. Others again fly back south and congregate at their winter gathering place in Mexican Angangueo (FB 146). In the first instance, the bright orange butterflies, which are reproduced (albeit in abstract form, as small golden leaf shapes swarming above bare treetops) on the book’s dustcover, symbolise the fragile, transient beauty of nature and the risk from global warming. However, their association in folk belief with the souls of dead children is also referred to at several points (e.g. FB 359). The threat to their survival thus serves as a poignant reminder of the fate of future human generations facing the consequences of climate change. In the final pages of *Flight Behaviour*, the belated arrival of spring triggers a snowmelt which engulfs Dellarobia’s home, in a scene reminiscent of the Biblical flood, suggesting divine punishment. However, the onset of the exodus of the surviving butterflies merges flood and flame in a reprise of the opening scene of the book, suggesting that violent change may also bring rebirth (FB 420).

Trojanow uses a more limited range of images to make climate change resonate in our lives and to help us imagine the future. But here too marital breakdown and cancer are markers of what is wrong with society: the demise of “his” glacier coincides with the breakup of Zeno’s marriage and the discovery that he has cancer (MI 105), a disease which he relates to his former “hypocritical everyday life” (MI 161). Just as genres and narratives serve as framing templates in *Flight Behaviour* and *Melting Ice*, both novels thus reveal a consciously organised

patterning of imagery so as to connect perceptions of and responses to environmental risk with familiar instances of inadequate or detrimental behaviour, and relate them more generally to social values.

In conclusion: the contribution of literary analysis to discourses of risk perception, and the ability of climate fiction to enhance public response to environmental risk

My discussion of the two novels has sought to demonstrate two things. First, that textual analysis using the concepts and methods of literary criticism can complement sociological and psychological studies of seemingly illogical public responses to environmental risk, by giving insight into the role which formal and thematic cultural conventions play in shaping popular perceptions. It has indicated that literary representations of risk denial are consonant with Norgaard's understanding of it as an active process involving the use of cultural tools. And secondly, I have sought to show that writers make a positive contribution to public debates on environmental risk, by drawing on the cultural archive, adapting and experimenting with specific genres, narratives and images. If, Norgaard argues in the conclusion to her book, we are to overcome climate denial, we must go beyond merely providing information and conventional environmental education programmes. But how? She cites as particularly valuable Susanne Moser's calls for communicators to engage with and support individuals and communities, to create a sense of feasibility, collectivity, and urgency, arising from fact, experience, common sense and moral responsibility.¹⁶ This can be done most effectively by tapping into people's desires for a better future, social identities and aspirations, and cultural values.

If literature can play a part in this process, it is perhaps above all in helping the public *imagine* climate change and related risks. Novelists retrieve, interrogate, and experiment with the assembly of cultural tools relevant to debates on climate change risk, thereby enhancing their readers' competence in facing the challenge it poses. Globalisation has magnified the challenge of maintaining a sense of citizenship, empowerment, and commitment to a moral community. Fiction can help us imagine how our lives are connected to those of people already affected directly

¹⁶ See Susanne Moser and Lisa Dilling, "Communicating Climate Change."

by climate change, and to see how our values are threatened by the problems they face. Combining realism with the symbolic forms, the two novels examined draw attention to our fragmented awareness of the danger, our failure to recognise the impact of our actions, and the psychic numbing in our everyday lives. Trojanow seeks to reinvigorate the sociological imagination with a narrative which challenges readers to think beyond positions of apathy and misanthropy, while Kingsolver's tale suggests that crossing the threshold into awareness and becoming politically engaged can be a liberating and exhilarating experience, creating a new sense of integrity between self and world.

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